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SG/64/363

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PATENT APPLICATION NO: PI 2003 4219

This is to certify that annexed hereto is a true copy from the records of the Registry of Trade Marks and Patents, Malaysia of the application as originally filed which is identified therein.

By authority of the
REGISTRAR OF PATENTS

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CERTIFICATE OF FILING

APPLICANT	:	HARN MARKETING SDN BHD
APPLICATION NO	:	PI 20034219
REQUEST RECEIVED ON	:	05/11/2003
FILING DATE	:	05/11/2003
AGENT'S/APPLICANT'S FILE REF.	:	9693MY18/MK/SAR

Please find attached, a copy of the Request Form relating to the above application, with the filing date and application number marked thereon in accordance with Regulation 25(1).

Date : 19/11/2003

.....
(MOHD. AMRAN ABAS)
for Registrar of Patents

To : PATRICK MIRANDAH
C/O ELLA CHEONG, MIRANDAH & SPRUSONS,
SUITE 1808, 18TH FLOOR, IGB PLAZA,
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50400 KUALA LUMPUR.
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FF 09

Patents Form No. 1
PATENTS ACT 1983

REQUEST FOR GRANT OF PATENT
(Regulation 7(1))

To : The Registrar of Patents
Patent Registration Office
Kuala Lumpur
Malaysia

Please submit this Form in duplicate together with the prescribed fee.

APPLICATION NO: *For Official Use* PI 20034219
APPLICATION RECEIVED ON : 05-11-2003
Fee received on : 05-11-2003
Amount : RM200.
**Cheque/Postal Order/Money Order/Draft/Cash No :*
MB 560961.

~~*Applicant's or*~~ *Agent's file reference:* ***9693MY18/MK/sar***

THE APPLICANT(S) REQUEST(S) THE GRANT OF A PATENT IN RESPECT OF THE FOLLOWING PARTICULARS :

I. TITLE OF INVENTION : ***Drawer pull out guide rail***

II. APPLICANT(S) (the data concerning each applicant must appear in this box or, if the space is insufficient, in the space below)

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Nationality : ***A company organized under the laws of Malaysia***

Permanent residence or principal place of business :

Telephone Number (if any)
-

Fax Number (if any)
-

DITERIMA
05 NOV 2003
Unit Teknologi Perbadanan Harta Intelek Malaysia

Additional Information (if any)

III. INVENTOR

Applicant is the inventor — *Yes* [ ] *No* [X]

If the applicant is not the inventor :

No.	*Name of inventor*	*Address of inventor*
1.	***Lam Harn Lian***	***7, Jalan Au Kong, Taman Kampar, 30250 Ipoh, Perak***
2.	***Lam Harn Yan***	***- same as above -***

A statement justifying the applicant's right to the patent accompanies this Form :

Yes [ ] *No* [X]

Additional Information (if any)

IV. AGENT OR REPRESENTATIVE

Applicant has appointed a patent agent ~~in accompanying~~ via Form No. 17 which will follow

Yes [X]

No [ ]

Agent's Registration No. : ***PA 87/0005***

Applicants have appointed .....
to be their common representative

V. DIVISIONAL APPLICATION

This application is a divisional application [ ]

The benefit of the

filing date [ ] *priority date* [ ]

of the initial application is claimed in as much as the subject-matter of the present application is contained in the initial application identified below :

Initial Application No. : .....

Date of filing of initial application : .....

VI. DISCLOSURES TO BE DISREGARDED FOR PRIOR ART PURPOSES

Additional information is contained in supplemental box :

(a) Disclosure was due to acts of applicant or his predecessor in title ☐

Date of disclosure :

(b) Disclosure was due to abuse of rights of applicant or his predecessor in title ☐

Date of disclosure :

A statement specifying in more detail the facts concerning the disclosure accompanies this Form

Yes ☐

No ☐

Additional Information (if any)

VII. PRIORITY CLAIM (if any)

The priority of an earlier application is claimed as follows :

No.	***Country***	***Filing Date***	***Application No.***

Symbol of the International Patent Classification :

If not yet allocated, please tick ☐

The priority of more than one earlier application is claimed :

Yes ☐ *No* ☐

The certified copy of the earlier application(s) accompanies this Form :

Yes ☐ *No* ☐

If No, it will be furnished by *(date)*

Additional Information (if any)

05 NOV 2003

VIII. CHECK LIST

A. This application contains the following :

1. request		
2. description	*7*	*sheets*
3. claim	*2*	*sheets*
4. abstract	*1*	*sheets*
5. drawings	*4*	*sheets*
Total	*14*	*sheets*

B. This Form, as filed, is accompanied by the items checked below :

(a) signed Form No. 17	
(b) declaration that inventor does not wish to be named in the patent	
(c) statement justifying applicant's right to the patent	
(d) statement that certain disclosures be disregarded	
(e) priority document (certified copy of earlier application)	
(f) ~~cash~~, cheque, ~~money order, banker's draft or postal order~~ for the payment of application fee	X
(g) other documents	

IX. SIGNATURE

Date : ***5th November 2003***

.....

***(~~Applicant~~/Agent)**

PATRICK MIRANDAH

If Agent, indicate Agent's Registration No. : ***PA 87/0005***

For Official Use

1. Date application received : .....

2. Date of receipt of correction, later filed papers of drawings completing the application :

.....

* *Delete whichever does not apply.*

** *Type name under signature and delete whichever does not apply*

Drawer Pull Out Guide Rail

Field of Invention

The present invention relates to an improved pull out guide rail for a drawer, capable of withstanding maximized drawer volume and to secure lateral guiding of said drawer.

Background of Invention

A conventional guide rail assembly or arrangement basically consists of a stationary or fixed guide fastened to a portion of the furniture member, specifically the inner side walls of the furniture member, and an intermediate pull out rail and an outer pull out guide. These conventional guide rails have undergone recent advances and enhancements to prevail major drawbacks mostly related to load carrying capability of the guide rails, and the sloppiness in and out movement of the drawer.

While the existing guide rails may offer some conveniences, most of them lack of stability. This includes very low dynamic stability and rigidity when a relatively heavy load is applied to the drawer and indirectly to the guide rail.

One possible approach to cope with the situation above is the usage of roller balls, within the drawer guide rail. It is understood that the usage of these roller balls aid to absorb and spread vertical forces over a larger area, within the rails. Nevertheless, the usage of roller balls solely permits limited loading and may be ineffectual with extreme loading.

Other disadvantages of the out in the market drawer guide include the lack of rollers contacts within a guide rail. Most of the existing guide rails are equipped with rollers on each outer surface of the pull out channels, for allowing the smooth in and out movement of the guide rail along with the drawer. Such guide rail may operate excellently with less loading of the drawer, however can be inefficient when a heavy load is applied.

Recognizing the aforementioned shortcomings, the invention further develops the stability of the guide rail.

It is an object of the present invention to provide a more stabilized and secured lateral movement of the drawer and as well able to withhold extensive drawer load, by providing an additional element, so as to provide more force absorbance capability.

It further an object of the present invention to provide a motion stabilizer for relatively heavy or light drawers, loaded or unloaded, installed relatively on the bottom surface of the drawer, for in and out movement of the respective furniture.

Summary of Invention

The present invention discloses a drawer guide rail assembly mounted for a guided and stabilized in and out movement with respect to a furniture member comprising:
A drawer guide rail assembly mounted for a guided and stabilized in and out movement with respect to a furniture member comprising: a fixed guide for attachment to an inner sidewall of the furniture member and having at least one running surface; wherein the running surface is a T- shaped flange extending upwards ; an intermediate pull out channel section capable of sliding back and forth relative to said fixed guide on said running surface of said fixed guide; the upper surface of said intermediate pull out channel section providing a second running surface and housing a first roller bearing unit; an outer pull out channel section for attachment to the undersurface of a drawer capable of sliding back and forth on said intermediate pull out channel relative to said intermediate pull out channel section and for housing a second roller bearing; a stabilizing means positioned between said intermediate pull out channel and said outer pull out channel; first and second roller bearing fitted within the respective channels in a manner whereby each of said roller bearing prevents lateral movement within said guide rail.

Brief Description of the Drawings

Figure 1 depicts the perspective view of the preferred embodiments in accordance with the present invention.

Figure 2 illustrates the side view of the drawer installed with the embodiments of the present invention, in a pulled-out state.

Figure 3 illustrates the cross sectional view of the drawer installed with the embodiments of the present invention.

Figure 4 illustrates another perspective view of the guide rail in accordance with the preferred embodiments of the present invention.

Detailed Description of the Invention

The invention basically provide an arrangement of a guide rail for a more stabilized movement of a drawer when inserted in the furniture member or any supporting structure, especially when accommodating a significant amount of weight.

Figure 1 and Figure 4 depict the overall views of the guide rail in accordance to the preferred embodiments of the present invention, having a fixed guide mounted on the opposite inner walls of the furniture member and one component of the guide rail is accordingly mounted on the bottom surface of the drawer itself.

In this invention, the drawer in and out movement is accordingly guided and stabilized while supported by support means referred herein as the fixed guide.

The present invention comprises a fixed guide, an intermediate pull out channel, stabilizing means, outer pull out channel, and roller unit for allowing the translational movement of the subject guide rail assembly.

The essential part of the present invention is the stabilizer 10, in which the said stabilizer is detachable and preferably appended in between the intermediate pull out channel and the outer pull out channel.

Various embodiments of the guide rail according to the present invention are described below with reference to the accompanying drawings.

As can be seen in Figure 1, the fixed guide 20 is formed preferably from a sheet metal or any suitable material into an L – section. The upper free edge of the horizontal plate of the L- section bracket is bent upwardly to form a T- cross section, configured accordingly to receive the intermediate pull out channel and forming a first running surface. In this context, the height of this T- cross section is significantly less than the height of the vertical surface of the L- shaped fixed guide 20.

Further, on the said vertical surface of the L- section fixed guide 20 is provided with fastening bores adapted to receive suitable fastening means for mounting through the inner sidewalls of the furniture member.

The intermediate channel 30 is in the form of an open C- section with unequal sides, forming the second running surface in the upper area. At the upper end and rear end of each side of the channel 30 is punched and formed a hook like protrusion, extending inwards, so as to hold the roller unit in place during the in and out movement of the guide rail.

The stabilizer 10 in accordance with the present invention is preferably detachable and in the form of a planar metal plate, having slightly inclined sides defining a shoulder on

each side for guiding and stabilizing the in and out movement of the outer pull out channel 50. In this context, the measurement across the plate is considerably more than the width of the intermediate pull out channel 30 however is slightly less than the width of the outer pull out channel 50 as best seen in Figure 1. At the upper end of said plate is punched and formed a protrusion extending outwards for holding roller units 15, 25 in position during movement.

The stabilizer may as well act a support for the guide rail, especially during the in and out movement of the drawer.

Still referring to Figure 1, the outer pull out channel is as well in the form of an open C-section, in which the width of the said outer pull out channel 50 is substantially configured to receive the stabilizer 40 and capable to slide therein. At the rear edge of the upper surface of the outer pull out channel 50 is provided with an inverted L-shaped extension which functions as a back stopper 35, whereby this back stopper holds the drawer when it is pulled out. According to the present invention, the top surface of the outer pull out channel is preferably mounted to the bottom surface of the drawer to as well provide support and guided movement of the drawer.

A roller bearing 15, 25 consist of several cylindrical roller bodies held by a suitable receptacle, whereby the alignments of the roller bodies are generally parallel to the movement direction. On each opposite sides of the roller receptacle is also provided with roller bodies accordingly held in a position suitable to provide a side rolling contact. In this context, the roller second roller unit functions to hold the stabilizer in position during stationary state and during the in and out movement of the drawer.

The operational effect of the guide rail according to the present invention will be described herein below, and with reference to the accompanying drawings.

When the guide rail is assembled, the first roller bearing 15 is accordingly disposed over the upper running surface of the fixed guide 20. The intermediate pull out channel 30 fits

slidably over the first roller bearing 15 as well as the T-section of the fixed guide 20. In this connection, the intermediate pull out channel slides smoothly with the aid of the first roller unit.

The stabilizer 10 is preferably disposed between the second roller bearing 25 and intermediate pull out channel as best shown in Figure 1. The outer pull out channel 50 fits slidably over the second roller bearing 25 and the stabilizer 10.

During normal operational use of the drawer guide, first, the fixed guide 20 is fastened accordingly to the inner sidewalls of the furniture member by rivets or the like. In this connection, there is a gap between the inner sidewalls of the respective furniture member and the outer sidewalls of the drawer, to provide unhindered lateral movement of the drawer. Then, the first roller unit is placed over the running surface of the fixed guide 20, together with the intermediate pull out channel 30. This process is shown in Figure 1 and 2, whereby Figure 2 depicts the drawer in a pulled out position.

Next and as best seen in Figure 4, the separable stabilizer is mounted on the top surface of the intermediate channel pull out channel 30 while the second roller unit is disposed over the stabilizer, and the outer pull out channel is placed accordingly over the second roller unit as well as the stabilizer, as shown in Figure 3 of the present invention. In this connection, the second roller unit provides a rolling contact between the intermediate pull out channel as well as the outer pull out channel. The outer pull out channel is permanently connected or secured to the bottom surface of the drawer by suitable fastening means or the like.

In this embodiment, the intermediate pull out channel can be moved relative to the first roller bearing and the running surface of the fixed guide 20 together with the outer pull out channel. In this event, the first roller accordingly disposed over the running surface prior to the intermediate pull out channel 30 can as well roll on the said running surface. For the operation of drawer in a horizontal position, there is provided two points of

contact of the rollers is sufficient to facilitate in maintaining the stabilization of the drawer due to the weight and loading of the drawer, whereby the first point is within the pull out channels inner surfaces, and the second point is on the outer opposite sides of the pull out channels.

As shown in Figure 3, when the drawer is pulled out, the first roller unit rolls along the drawer and the intermediate pull out channel up to a level when the intermediate pull out channel is partially under the drawer, while the outer pull out channel along with the second roller unit extends beyond the intermediate pull out channel, reaches around the front edge of the drawer. In this event, the back stopper 35 will hold the drawer in the stabilized position.

When a load is applied to the outer pull out channel, the vertical forces are mainly absorbed by the second roller unit, while the force produced from the outer pull out channel is thereby supported by the stabilizer and absorbed by the first roller unit. With the stabilizer, the load bearing capability of the guide rail during the lateral movement is significantly increased.

Proceeding from the above, because of the two differently rolling contacts, one within the pull channels and another at each side of a channel, a high static rigidity in operation can be achieved and since an additional stabilizer is provided within the guide rail, the dynamic stability can be obtained. The roller bearing may also prevent distorted movement within the guide rail of the present invention.

While the above provides a complete disclosure of the preferred embodiments of the present invention, various modifications, alternate constructions and equivalents may be employed without departing from the objective and scope of invention.

Claims:

1. A drawer guide rail assembly mounted for a guided and stabilized in and out movement with respect to a furniture member comprising:

a fixed guide for attachment to an inner sidewall of the furniture member and having at least one running surface; wherein the running surface is a T- shaped flange extending upwards ;

an intermediate pull out channel section capable of sliding back and forth relative to said fixed guide on said running surface of said fixed guide; the upper surface of said intermediate pull out channel section providing a second running surface and housing a first roller bearing unit;

an outer pull out channel section for attachment to the undersurface of a drawer capable of sliding back and forth on said intermediate pull out channel relative to said intermediate pull out channel section and for housing a second roller bearing;

a stabilizing means positioned between said intermediate pull out channel and said outer pull out channel;

first and second roller bearing fitted within the respective channels in a manner whereby each of said roller bearing prevents lateral movement within said guide rail.

2. The pull out guide as claimed in claim 1 wherein the stabilizing means is in the form of a metal sheet having inclined sides.
3. The pull out guide as claimed in claim 1 wherein the stabilizing means is detachable.
4. The pull out guide as claimed in claim 1 wherein the fixed guide is an L- shaped bracket provided with a running surface.
5. The pull out guide as claimed in claim 1 wherein the intermediate and outer pull out guide has a C- cross section.
6. The pull out guide as claimed in claim 1 wherein the roller unit comprised of several cylindrical roller bodies held by a suitable receptacle.

ABSTRACT

Drawer Pull out Guide Rail

A drawer guide rail for a stabilized and guided in and out movement of a drawer with respect to the furniture member, having at least one surface of the pull out channel mounted on the bottom surface of the drawer, and a fixed guide adapted to be fastened on either side or both sides of the inner sidewalls of the respective furniture member. The guide rail assembly includes an outer pull out channel, intermediate pull out channel and roller units for allowing the relative movement of the pull out channels. The essential part of the present invention is an additional stabilizer means, in the form of a metal plate adapted to provide a running surface and is disposed between two roller units accordingly, to facilitate absorbance of vertical forces and stabilized drawer motion.

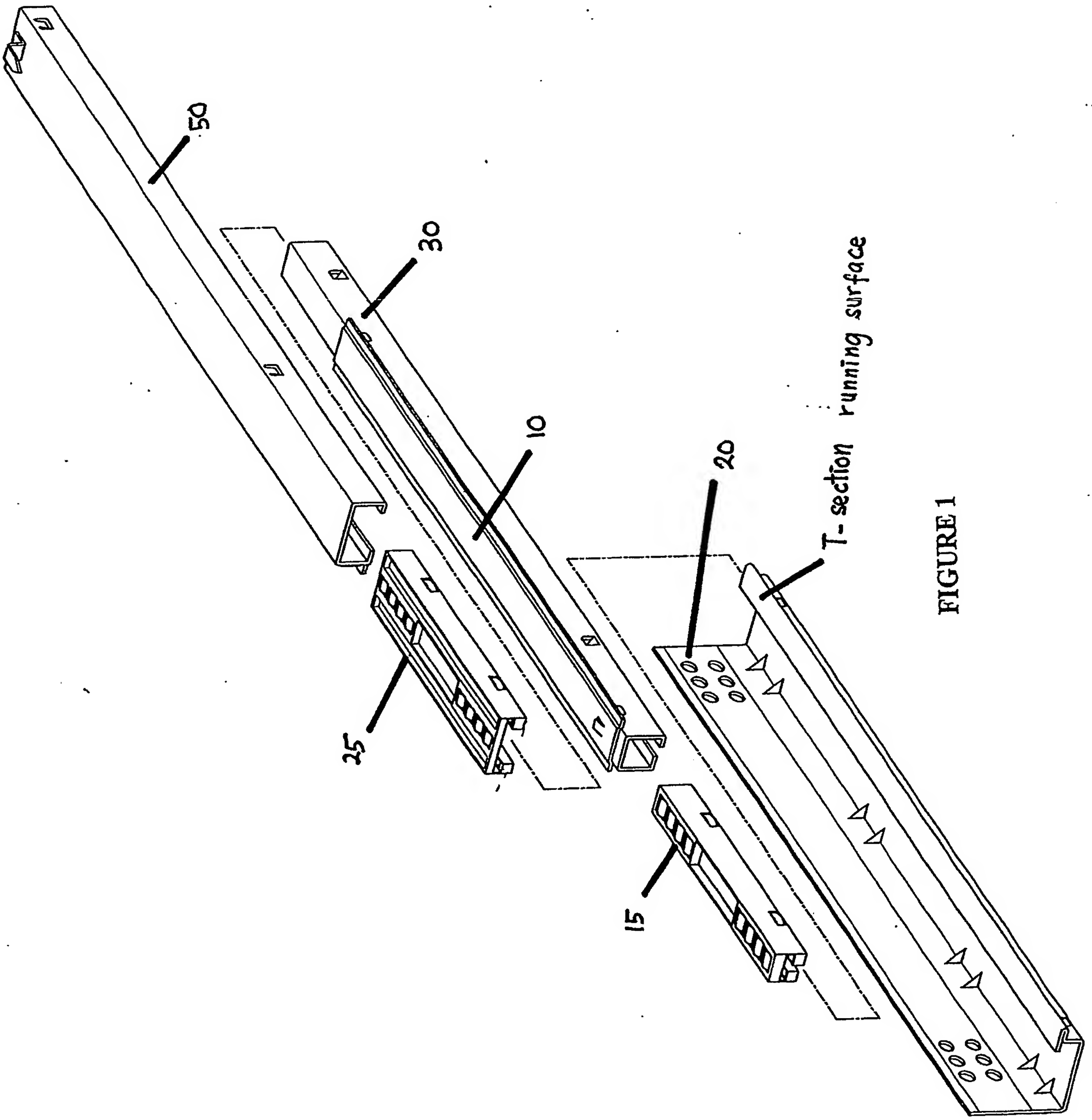

FIGURE 1

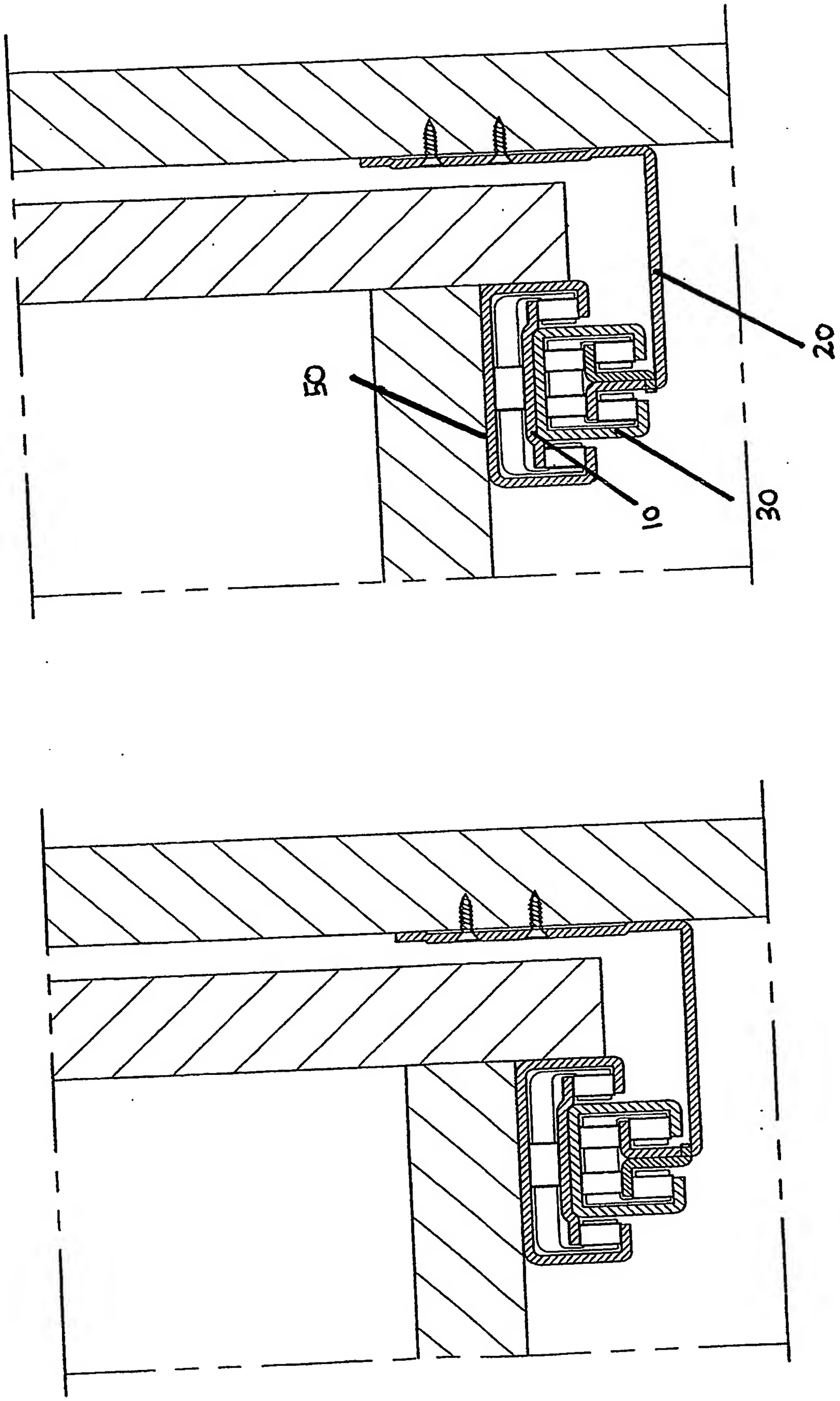

FIGURE 2

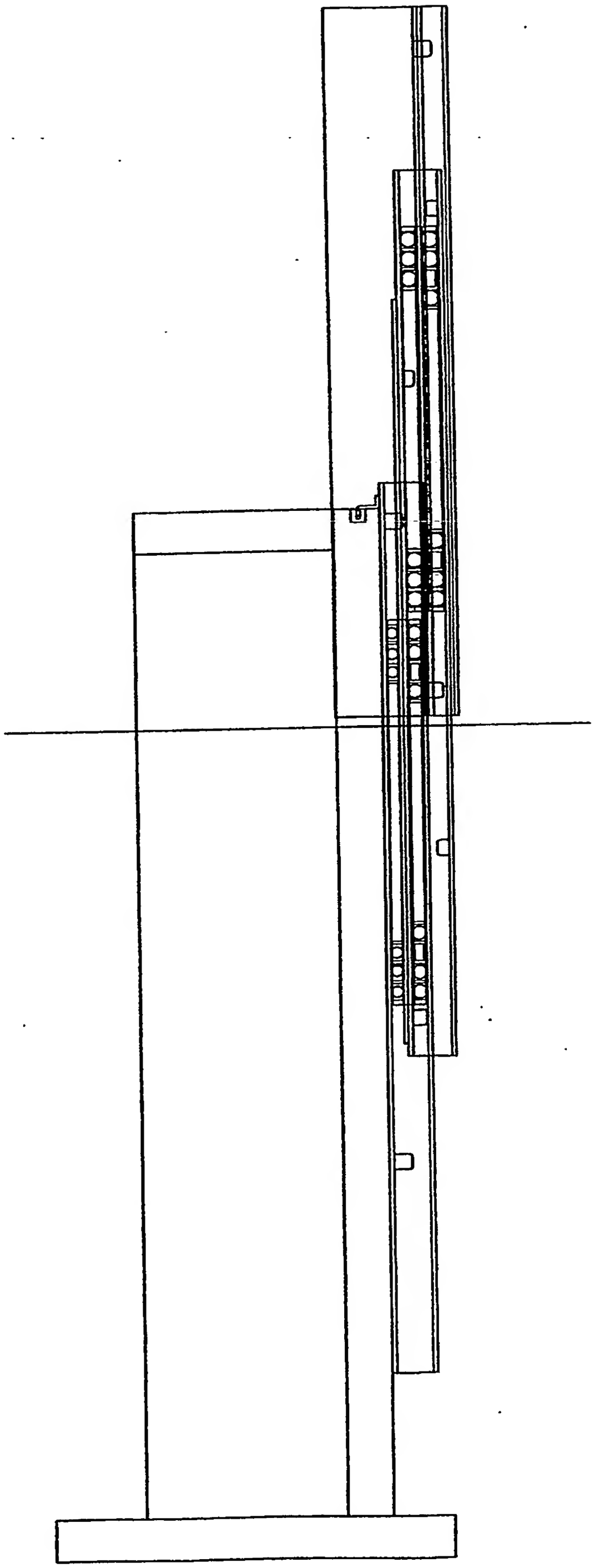

FIGURE 3

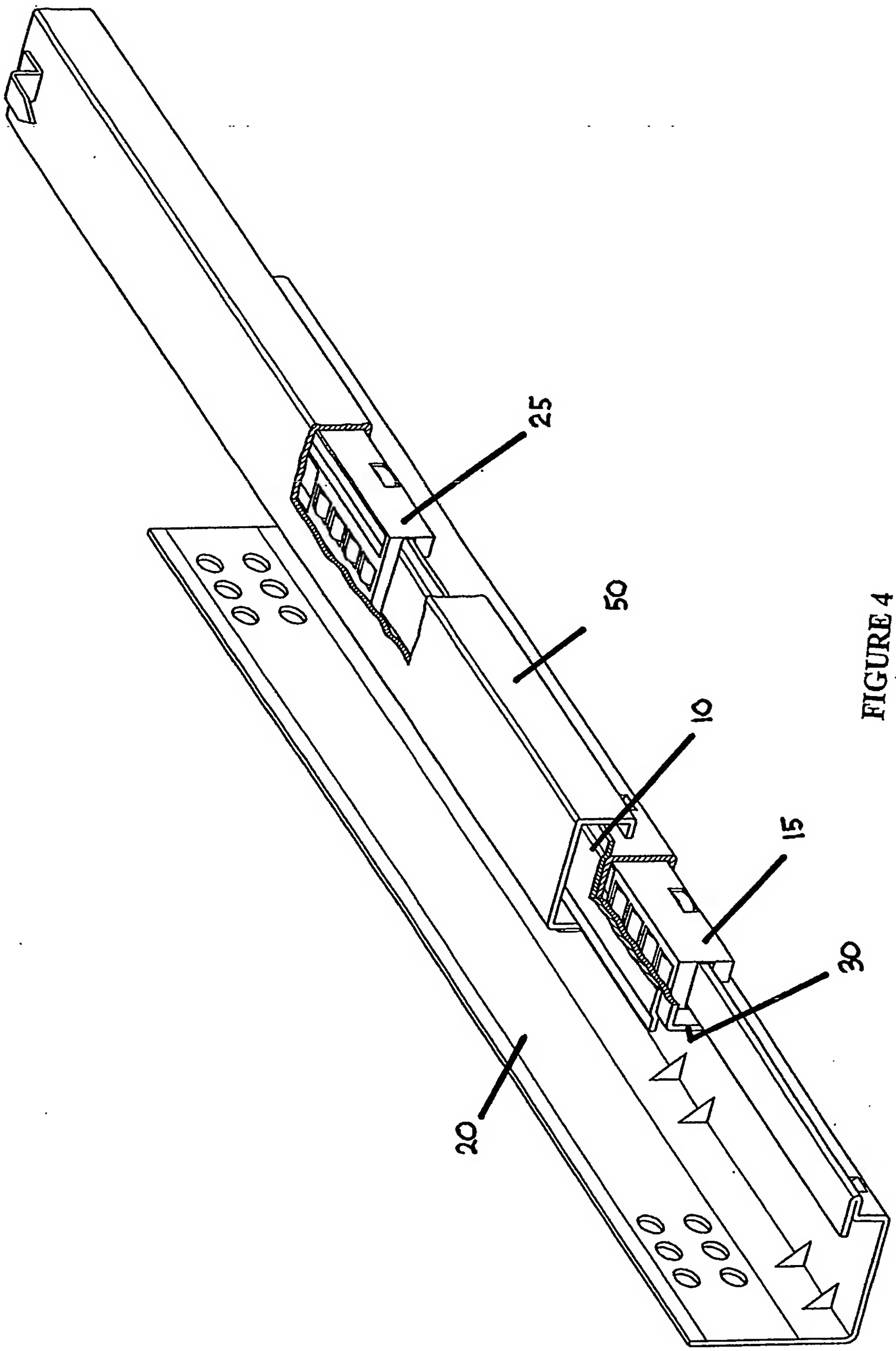

FIGURE 4

Document made available under the Patent Cooperation Treaty (PCT)

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